

1. Simplify the expression below into the form  $a + bi$ . Then, choose the intervals that  $a$  and  $b$  belong to.

$$\frac{-72 - 77i}{-2 - 5i}$$

- A.  $a \in [17.5, 19]$  and  $b \in [-207.5, -205]$   
B.  $a \in [-10, -7.5]$  and  $b \in [17, 19]$   
C.  $a \in [528, 530]$  and  $b \in [-8.5, -5]$   
D.  $a \in [17.5, 19]$  and  $b \in [-8.5, -5]$   
E.  $a \in [35.5, 36.5]$  and  $b \in [15, 16]$
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2. Simplify the expression below and choose the interval the simplification is contained within.

$$3 - 2^2 + 17 \div 4 * 14 \div 20$$

- A.  $[1.2, 4.2]$   
B.  $[-4.9, -0.1]$   
C.  $[4.6, 9.2]$   
D.  $[9.5, 10.2]$   
E. None of the above
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3. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{2156}{14}}$$

- A. Integer  
B. Not a Real number  
C. Irrational  
D. Rational

E. Whole

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4. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{1872}{8}} + 4i^2$$

- A. Not a Complex Number
  - B. Pure Imaginary
  - C. Rational
  - D. Irrational
  - E. Nonreal Complex
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5. Simplify the expression below and choose the interval the simplification is contained within.

$$15 - 18^2 + 20 \div 2 * 12 \div 13$$

- A.  $[346.23, 354.23]$
  - B.  $[-300.77, -290.77]$
  - C.  $[338.06, 344.06]$
  - D.  $[-311.94, -306.94]$
  - E. None of the above
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6. Simplify the expression below into the form  $a + bi$ . Then, choose the intervals that  $a$  and  $b$  belong to.

$$\frac{-54 + 44i}{-7 - 5i}$$

- A.  $a \in [2.1, 2.8]$  and  $b \in [-579, -577.5]$
- B.  $a \in [157.85, 159]$  and  $b \in [-8.5, -7.5]$

- C.  $a \in [7.75, 8.45]$  and  $b \in [-1.5, 0]$   
D.  $a \in [7.15, 8.05]$  and  $b \in [-9.5, -8]$   
E.  $a \in [2.1, 2.8]$  and  $b \in [-8.5, -7.5]$
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7. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{441}{100}}$$

- A. Irrational  
B. Rational  
C. Not a Real number  
D. Integer  
E. Whole
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8. Simplify the expression below into the form  $a + bi$ . Then, choose the intervals that  $a$  and  $b$  belong to.

$$(8 + 5i)(4 + 9i)$$

- A.  $a \in [74, 82]$  and  $b \in [49, 56]$   
B.  $a \in [31, 36]$  and  $b \in [43, 51]$   
C.  $a \in [-18, -9]$  and  $b \in [-93, -88]$   
D.  $a \in [-18, -9]$  and  $b \in [88, 98]$   
E.  $a \in [74, 82]$  and  $b \in [-60, -48]$
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9. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{1078}{0}} + \sqrt{90}i$$

- A. Pure Imaginary

- B. Irrational
  - C. Nonreal Complex
  - D. Not a Complex Number
  - E. Rational
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10. Simplify the expression below into the form  $a + bi$ . Then, choose the intervals that  $a$  and  $b$  belong to.

$$(9 - 3i)(-10 - 4i)$$

- A.  $a \in [-104, -96]$  and  $b \in [1, 9]$
  - B.  $a \in [-93, -87]$  and  $b \in [9, 15]$
  - C.  $a \in [-81, -70]$  and  $b \in [-69, -58]$
  - D.  $a \in [-104, -96]$  and  $b \in [-11, 1]$
  - E.  $a \in [-81, -70]$  and  $b \in [66, 70]$
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